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# MCZ newsletter

MUSEUM OF COMPARATIVE ZOOLOGY

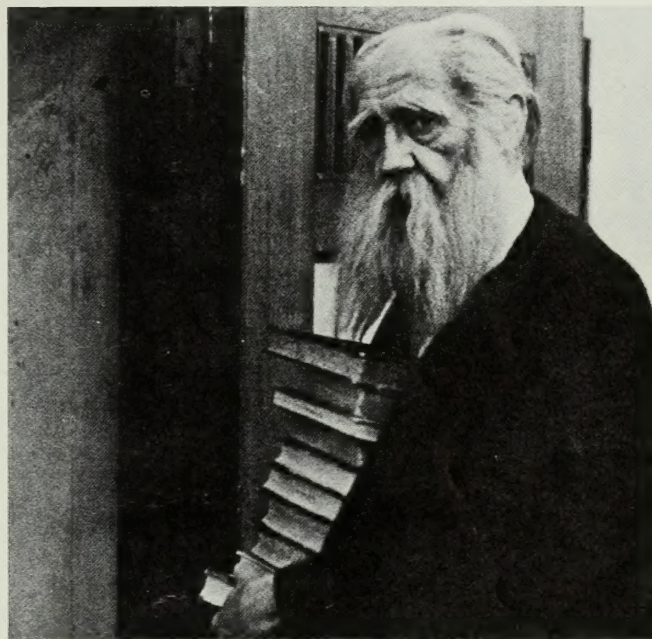
## FRIENDS OF THE MCZ SPRING LECTURERS: BERT HOLLDOBLE AND CHARLES DARWIN



Bert Holldobler

There is an interesting program in store for the Friends of the MCZ this Spring. On April 3, Professor Bert Holldobler will decipher for his audience "The Language of Ants" and will demonstrate through the evidence gained from experiments both in the field and the laboratory, how ants communicate chemically, visually, and mechanically as well as how ants entertain their guests. Professor Holldobler was Professor of Zoology at the University of Frankfurt before coming to Harvard two years ago. His innovative research on ant behavior has answered many hitherto puzzling questions. His lecture will be amplified with films of his subjects in action. There will be an exhibition of Turid Holldobler's remarkable ant drawings on view following the lecture.

On April 24, Charles Darwin will visit the MCZ. In this Bicentennial year, it is fitting that the Museum founded by Louis Agassiz in 1859, the same year that Darwin published *Origin of Species*, invite the revolutionary evolutionist to present his views to a modern audience. Hopefully, his ideas will now be received more favorably than they were by Louis Agassiz\* who called his theory a "scientific mistake, untrue in its facts, unscientific in its method and mischievous in its tendency."



"Charles Darwin"

Professor Richard M. Eakin of the University of California at Berkeley will be instrumental in bringing Charles Darwin to Harvard; in fact, he will be Charles Darwin. At Berkeley he has also appeared to his students as the geneticist Gregor Mendel, as William Harvey, and other scientific notables, making immediate their discoveries by letting them explain them in their own words. His unique talent at combining drama and science has evolved into a novel teaching style. His impersonations have received widespread national recognition.

Professor Eakin's research work has been concerned with two areas: the structure of invertebrate eyes and the significance of the third eye in vertebrates. He has published numerous papers on these subjects as well as a book entitled *The Third Eye*.

\*Professor Ernst Mayr, former Director of the MCZ and a foremost evolutionary biologist, explains that: "Louis Agassiz' attitude toward the theory of evolution is an extraordinarily interesting phenomenon in the history of the advance of scientific ideas. It is another illustration of the familiar concept that an age has to be ready for a new idea . . . Darwin's great fortune was that he was just enough ahead of his time to be a leader and not enough ahead to be ignored. Agassiz' misfortune was to have absorbed in his youth a *Zeitgeist* that was unsuitable for mixing with the revolutionary new ideas. He was, one may say, a victim of the thoroughness of his education."

Ernst Mayr: Agassiz, Darwin, and Evolution. *Harvard Library Bulletin*, Vol. XIII, No. 2, Spring 1959.



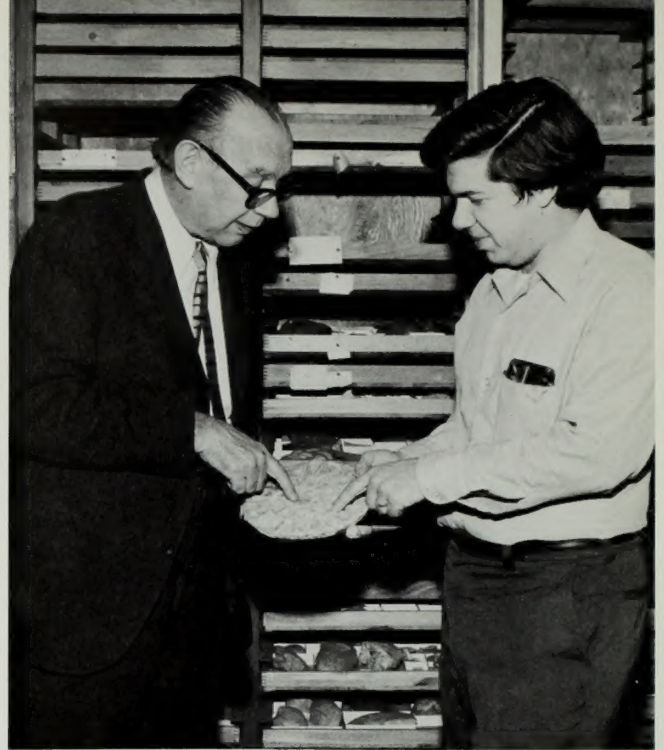
## COME ON IN—AGAIN!

This year the "old" MCZ will open its doors and drawers to the Friends of the MCZ and other interested members of the community on Thursday, March 6 from 4:00 to 6:00 P.M. The skeletons in our closets are well worth seeing; come and take a first-hand look at nature in all her diversity.



The Mollusk Department is ready to show visitors the many exquisitely colored and incredibly diverse shells in the collections. Staff members here assembled include (l. to r.) Richard I. Johnson, Marion Britz, Mary Jo Dent, Dr. Kenneth J. Boss, Dr. Ruth D. Turner, and Walter Baranowski.

Since Professor Richard Lewontin's third floor Laboratory for Population Genetics in the MCZ Labs, which has recently been completed, combines so well the latest modern scientific facilities with the human needs of the workers who use them, this will be the starting-off point. Then visitors will cross over the bridge to the old building and visit the MCZ departments to see some extraordinary examples of



Professors Bernhard Kummel (l) and Stephen J. Gould examine an ammonoid from the Jurassic (180 million years ago)—one of the rare treasures in the Invertebrate Paleontology collections. There's lots more to see in those drawers behind them as visitors at the Open House will find out.

the variety of nature from the MCZ's vast collections.

The departments in the old building include: on the fifth floor, birds and mammals; on the fourth floor, insects, butterflies and mollusks (shells); on the first floor, vertebrate and invertebrate paleontology (fossils with and without backbones); and in the basement, fish, reptiles and amphibians, the vertebrate paleontology preparation laboratory (where fossil skeletons are pieced back together and restored), and the exhibit preparation workshop (where the MCZ public exhibits are planned and put together). Members of the various departments will be on hand to show you around and answer questions.

## QUALIFIER TRIP UNQUALIFIED SUCCESS!

by Herbert Pratt, President, Friends of the MCZ

*A killer whale off San Benitos Island.*

Photo by Bob Vile



Thirty-one Friends of the MCZ have just returned, highly refreshed and packed with new scientific knowledge, from a seven-day boat trip to Baja California aboard the sports fishing vessel *Qualifier 105*. On our way to our primary objective, San Ignacio's Lagoon, one of the winter breeding and calving haunts of the California gray whale, we explored four totally different islands and found many new surprises. Besides seeing scores of gray whales, we saw numerous elephant seals and sea lions, a small but growing colony of Guadalupe fur seals, several killer whales, three varieties of dolphins and during our daily land explorations, a great variety of birds, shells, and desert plants, many of the latter in beautiful bloom. The general feeling of the group, expertly guided by Dr. Duncan M. Porter (botanist) and Dr. Steven J. Katona (mammalogist) was that in this completely unspoiled wilderness, we were on a unique, once-in-a-lifetime expedition which made us all especially observant of the natural history all around us in the hope of discovering something new in our lives. We were not disappointed. Naturally, binoculars and cameras were constantly in action. A reunion of the group is planned, not only to see each other, but to see everyone's best slides.



## TWO MCZ DEPARTMENTS RECEIVE SUBSTANTIAL FEDERAL AID

The Departments of Entomology (Insects) and Herpetology (Reptiles and Amphibians) are the grateful recipients of generous five year grants from the National Science Foundation. The funds are to be used for much-needed upgrading and expansion of the collections.

Dramatic changes will occur in five years in Entomology. The entire collection will be moved into new steel cabinets, a great improvement over the present wooden ones, facilitating fumigation and protecting the invaluable collections from water or fire damage. The collections will also be expanded into more space allowing the worker to readily find desired specimens. A new room for hymenoptera (wasps, etc.) will be located where the coral collections are presently housed, adjoining the new ant room. Come and look around at the Open House. The department is actively used with frequent visitors and an average of 130 annual loans including a total of more than 17,000 specimens.

Dr. John F. Lawrence, Coordinator of Entomological Collections, looks forward to the addition of several new staff members to carry out the greatly increased work. Funds will also be available to bring visiting curators to take care of special areas of the collections. Special curating projects can now be undertaken including the integration and labelling of the Horn and LeConte collections—the most important historic beetle collections of North America containing the type specimens (i.e. the original specimen on which the species name is based) of over 6,000 species of North American beetles.

Dramatic changes will also take place in the Herpetology Department, thanks to the National



*Curatorial Associate Janice Scott works with the Horn and LeConte Collections, her special project.*

Science Foundation. The infamous snake room will be totally renovated and will include lights which will permit the worker to see into the cabinets—an elementary but indispensable improvement.

The newly rebottled collection will be moved to modern steel cabinets, work areas will be expanded, and the many precious old books in the Herpetology Library will be rebound. One room will be entirely devoted to skeletons and the much needed and long overdue project of assembling a geographic file cross-indexing every specimen in the collection will finally be completed.

Professor Ernest E. Williams, Curator of Herpetology, hails the next five years as the most significant in the history of the department.

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## DRAWING FROM NATURE DRAWS LARGE RESPONSE

A new course in scientific illustration presented by the Friends Public Programs and taught by Laszlo Meszoly is a sell-out. There seems to be a large number of artistic animal lovers in the greater Boston area and to attempt to meet the surprising demand, it has been decided to repeat the course in the Spring. Sarah Landry will be the Spring instructor. Her work is well-known to readers of natural history; she provided the incredibly detailed drawings for Professor E. O. Wilson's *Insect Societies* and his forthcoming *Sociobiology: The New Synthesis*, both published by Harvard University Press (a beautiful drawing of helper behavior in Florida scrub jays taken from the latter book appeared in the January 10, 1975 edition of *Science*); her drawing of a California gray whale graced the December *Harvard Magazine* article describing the Friends' expedition; and there will be an exhibition of her work at Boston's Museum of Science in the summer.

The next Friends Public Programs offering will be a course in curatorial techniques offered by various members of the staff. Seven Saturday morning sessions will include introductions to how the various departments identify, prepare, and preserve natural history specimens.



*Laszlo Meszoly*



*Sarah Landry*



Professor Barry Fell came from New Zealand to the MCZ in 1964. His work at that time was concerned with the biology of the ocean floor in general and echinoderms (which include starfishes and sea urchins) in particular. Since then, his interest in how the ancient Pacific world was settled by plants, animals, and people has led him . . .

## FROM SEA STARS TO STAR CHARTS

by Barry Fell

The islands of Polynesia span 13 million square miles of the Pacific, four times the area of the United States, yet the total land amounts to half the area of Texas. The plants and animals present a puzzling mixture of forms, most of which seem to have evolved in isolation on the islands themselves, others are clearly identical with species found in Indonesia to

the west, yet others are identical with American species. Biologists have long since deduced that ancient travelers carried the Indonesian and American domesticated plants and animals into Polynesia. But who were they, and when did these mysterious travelers cross the seas? Proposed answers have ranged from American Indians on rafts to Indonesian fisherfolk blown to sea in storms.

Hundreds of mysterious inscriptions engraved on rocks and painted in caverns are to be found in Polynesia, scattered from Hawaii in the north-east to New Zealand and Easter Island in the two southern apices of the great Polynesian Triangle. Although thousands of miles separate the islands on which they occur, a marked similarity is observed in the signs of the various inscriptions. Authorities on Polynesian culture have maintained that the signs are the meaningless scrawls of an unlettered people, and deemed any serious study of their nature not worthy of the time and trouble. The language of Polynesia has been classified with the tongues of Indonesia and Melanesia, despite the fact that very little similarity can be demonstrated between the multitude of dialects spoken by the brown, olive-skinned and black peoples of this vast region.

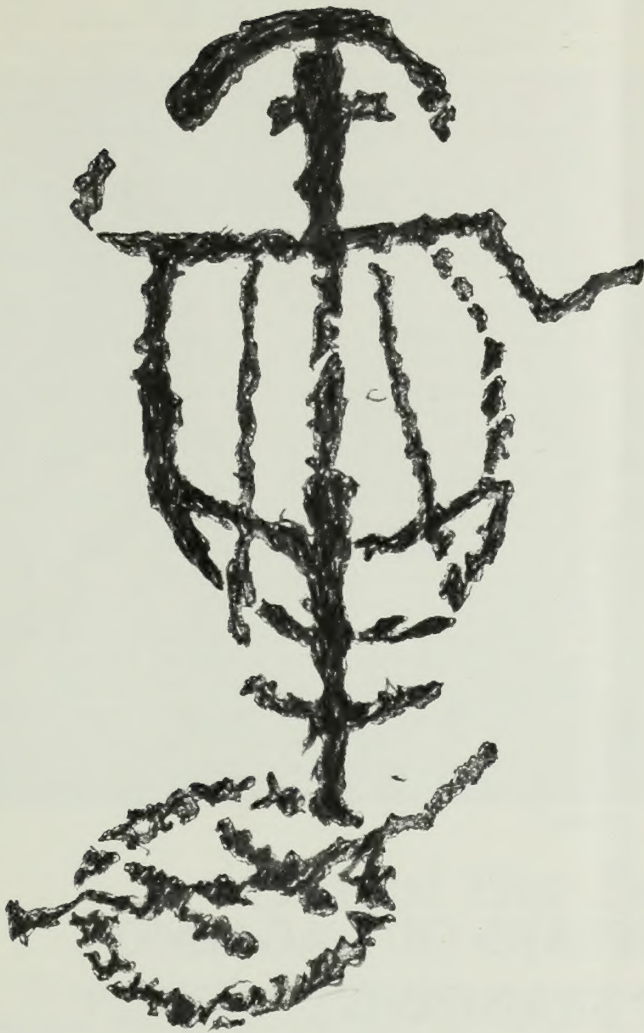
When I was a graduate student my zoology professor was Harry Borrer Kirk, who happened to have been in his earlier years an inspector of Maori schools; he had also been trained in the old classical tradition of Latin and Greek. He would sometimes point out to us students the curious matches between classical Mediterranean roots and words of the same meaning in Maori, the tongue of the New Zealand Polynesians. When he advised me to take up the study of echinoderms I recall he noted that the Greek word for sea urchin, *ekhinos*, resembled the Maori word, *kina*. It was a lesson I was to remember years later when pondering the origin of Polynesians and their language.

Harvard has a library extraordinarily rich in texts on obscure languages and writing systems; and when I came to the MCZ I soon learned that here was also an academic atmosphere remarkable for its breadth of compass, its intellectual freedom with that concomitant tolerance of off-beat ideas, provided they are accompanied by a persistent and serious program of tests and trials. Here is one place where an initial hunch can sometimes be nurtured into a demonstrable truth. My hunch was that the supposed meaningless scrawls of Polynesia might indeed be a written form of the Polynesian language, and that the texts it perhaps concealed would possibly answer our hitherto unsolved problems of how American and Asian domesticated plants and animals found their way to Polynesia.

*An ancient Libyan fisherman from a mosaic floor near Tunis, 200 A.D. (approx.).*







*The torquetum, an ancient astronomical instrument drawn and described by Maui, 232 B.C.*

It took about eight years of ransacking the Widener Library before the first results began to suggest that there was more to my hunch than just that—recognizable letter forms and words began to emerge. I showed these to my colleagues and met with an encouraging measure of interest; some students joined in the work (after their graduation some of them became founding members of the Polynesian Epigraphic Society). So it was in this favorable environment that the inscriptions were eventually deciphered, and the first exciting pieces of information began to emerge. Polynesian epigraphy thus is a new branch of study that evolved at the MCZ. I doubt if a more favorable atmosphere for solving the problem could have been found in any other place.

The texts, when deciphered, proved to be written in the Maori language as might have been expected. But the interesting fact emerged that the older an inscription is, the closer its vocabulary is to that mixture of Greek and Egyptian that was once spoken in North Africa after Alexander conquered Egypt. The oldest of

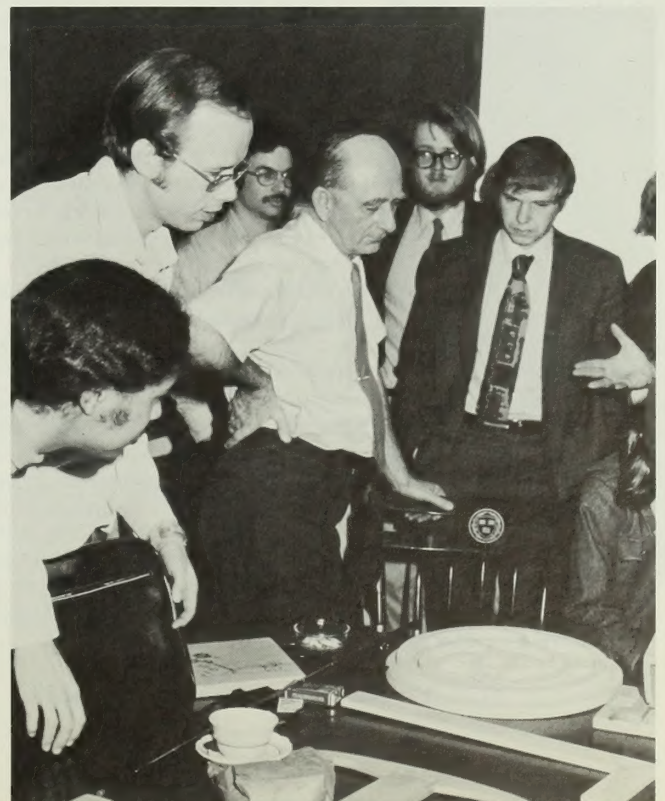
all the inscriptions proved to be written in ancient Libyan, a dialect of Egyptian spoken by the brown-skinned fisherfolk whom the Greeks called Mauri.

The oldest texts are found in caves near the coast, used as temporary havens of refuge by sailors sent out from Libya by Ptolemy III in the last half of the third century B.C., at a time when Libya and Egypt formed a single political entity. The texts are richly illustrated, and contain much astronomy and mathematics, elaborate calculations of the properties of the planet Earth accompanied by euclidian diagrams, and detailed maps of the stars used by navigators. It is especially to one navigator, Maui, that the success of the decipherment is due; for, with consummate skill, he contrived to record in the clearest possibly way, basic facts about the Earth and the solar system, coupled with details which (to an astronomer) disclose the era during which the astronomical observations were made.

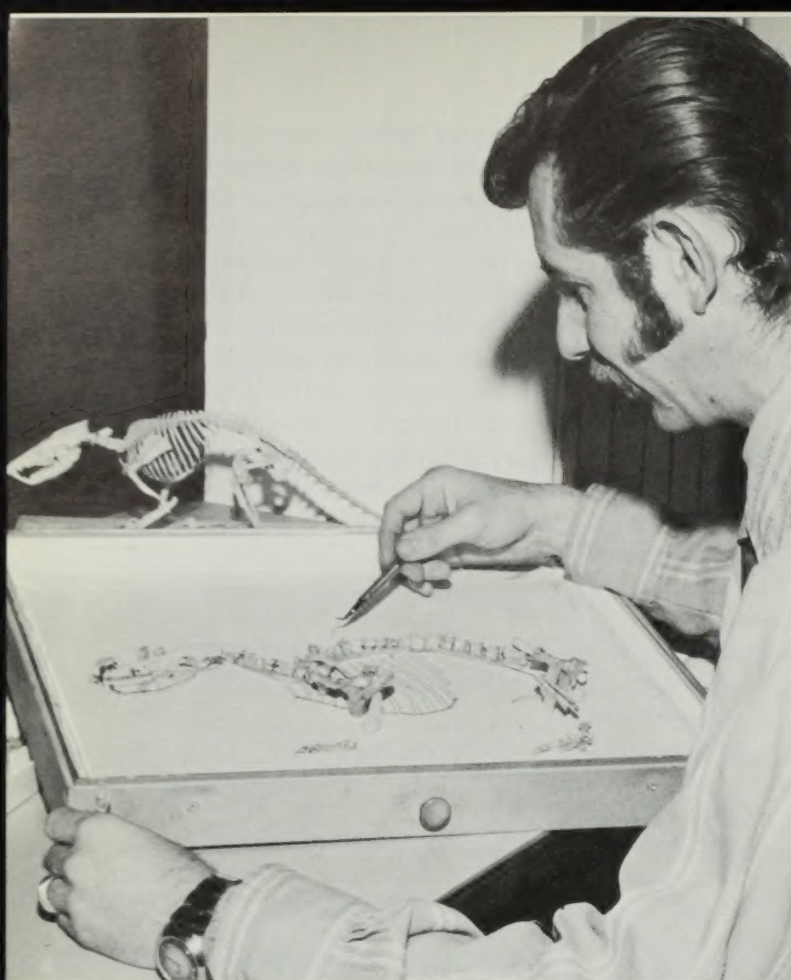
Owen Gingerich, Professor of Astronomy at Harvard and a Friend of the MCZ, was the first colleague whose advice we sought, and he in turn passed word of the finds to Professor Carl Sagan at Cornell.

Dr. Sagan wrote: "I'm enclosing a copy of our Pioneer 10 plaque which specifies our locale and epoch in what we believe is a universally decodable symbolism . . . The messages of Maui are very similar in intent. The possibility that the map ascribed to the region of the North Celestial Pole is intended as a clock for readers thousands of years later is breathtaking." Interdisciplinary studies constitute an area in which Harvard is justly known. The warm response from Cornell is cheering news as plans now go ahead for an expedition to revisit the caverns of Maui.

*Professor Fell (center) discusses a reconstructed navigation instrument with members of the Harvard community at a Natural History Seminar on November 13, 1974.*





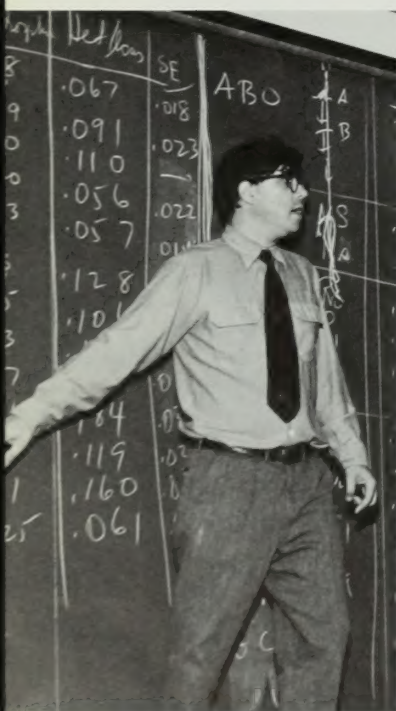


**INTRODUCING**—a new mammal skeleton from the Age of Dinosaurs. Charles Schaff, Curatorial Associate in Vertebrate Paleontology, is assembling the unique specimen that he found last summer on a National Geographic-sponsored expedition to Montana. The skeleton of a primitive modern insectivore in the background is useful for comparison.

## A FOSSIL FIRST

The skeleton shown here belongs to a triconodont, a member of an extinct order of mammals who lived in the Mesozoic era, more than 100 million years ago, and known previously in the fossil record only from jaws and teeth. Until this startling discovery, no one really knew what these contemporaries of many of the gigantic and better known dinosaurs were like. When Mr. Schaff located the weathered bones on an eroding outcrop one 105° day last June, he reveled in the rare pleasure of being the first paleontologist to become acquainted with an "unknown" animal. It is a giant as far as Mesozoic mammals go—most groups were the size of squirrels or smaller. Professor Farish A. Jenkins, Jr., Curator of Vertebrate Paleontology, anticipates that full study of the specimen may take some time; hundreds of tiny fragments remain to be pieced together to complete what is the first and only known Mesozoic mammal skeleton from North America. Even under the most favorable circumstances, the fossil record yields pieces very sparingly to those who try to solve this open ended jig-saw puzzle.

## OUTSPOKEN PROFESSOR SPEAKS OUT AGAINST GENETIC GROUP BRANDING



Professor  
Richard C. Lewontin

On a cold Monday morning in that lame-duck time of the year between Christmas and New Year's the normally serene Romer Library was assaulted by the confusion of cables that proclaimed the arrival of the all-seeing eye—television. The subject was Professor Richard C. Lewontin, the program was "NOVA: science adventures for curious adults" (Public Broadcasting Service aired February 2) and for half an hour Professor Lewontin shared with viewers the world from his point of view. Professor Richard Feynman, a theoretical physicist from the California Institute of Technology, was the other participant in a show that argued that we should all "take the world from another point of view."

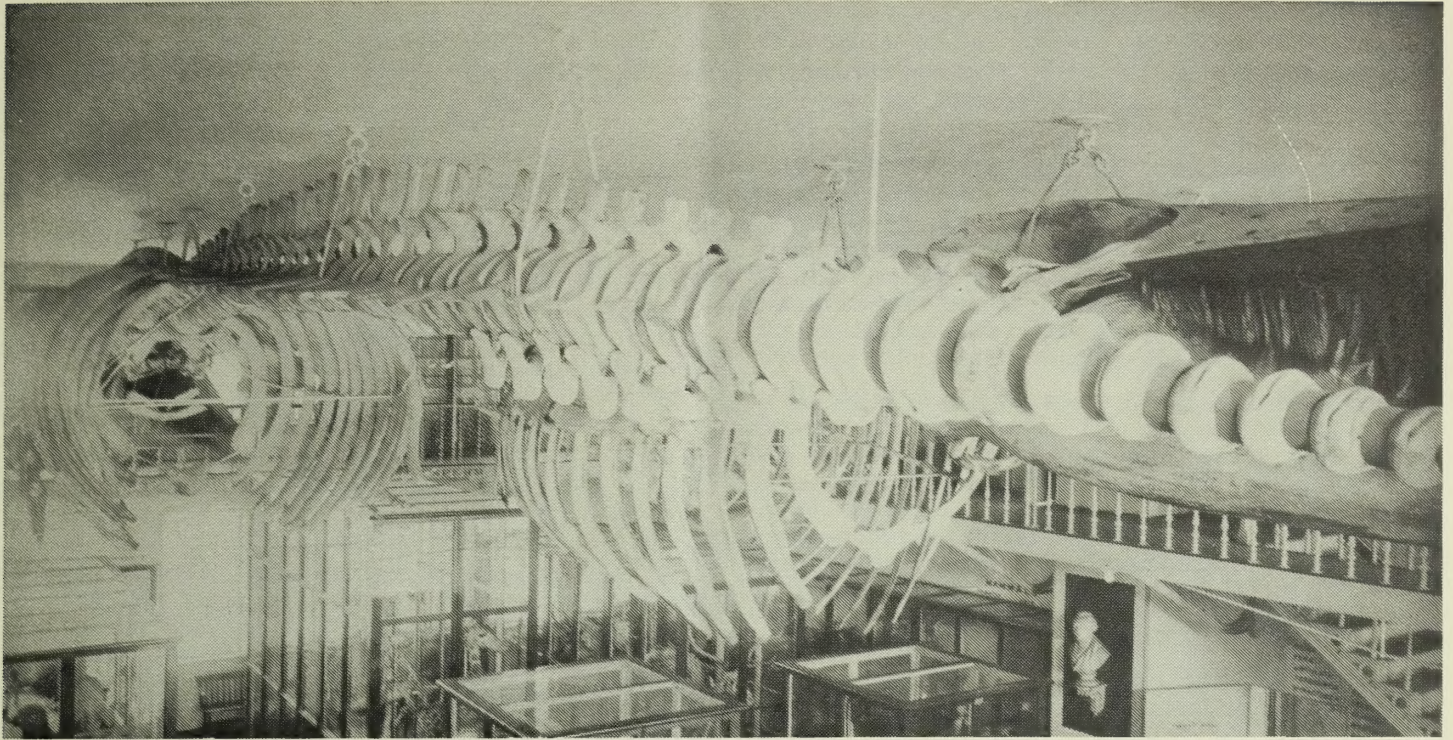
Dr. Lewontin, who came to Harvard from the University of Chicago last year and whose excellent work in population genetics is widely respected, is also known to be a biologist who is deeply concerned that the lessons of nature are not misunderstood or misapplied by society. He is outspoken in his criticism of those who seek to emphasize the genetic differences between races. The evidence, he argues, just does not support the view that any group is genetically "inferior" or "superior" to another.

According to Dr. Lewontin: "Darwin really was an immense revolutionary, far more than people realized... it's not that he introduced the notion of evolution because evolution was an old idea. But he introduced the idea that each individual object, each individual animal or plant or human should be looked at as an individual rather than as a member of some sort or type. The most common idea up to that time, the sort of thing that people got from Plato and Aristotle, was that the world consisted of a small number of types and every individual belonged to one of those types... All of science was the science of finding the real type behind the confusion of reality. And what Darwin did was to turn that upside down and say 'no, there are no types'."

Dr. Lewontin, together with Dr. Stephen J. Gould, is teaching a new course entitled Biological Determinism (Natural Sciences 36), a critique of all the theories that have arisen in the last ten years that try to attribute differences in behavior and intelligence among different human groups (races and sexes) to innate biology. They are obviously being heard—enrollment is 170.



# Help Take the MCZ's\* Whales



## Out of the Sardine Can!

This photograph was taken at the turn of the century and is part of the MCZ Archives. Quaint and historic? Maybe, but a visit to the MCZ's Mammal Hall will show the visitor that the whales haven't moved from their cramped position since that picture was taken. They've been adorned by a bit more graffiti and the hands of countless curious youngsters have left them slightly shabby but their static stance is unchanged.

With the current widespread concern for the survival of these much-hunted majestic sea mammals, it is vital that the MCZ, as greater Boston's only museum devoted entirely to natural history, have on display skeletons that allow the public to properly appreciate the largest living mammals. A complete overhaul of this important exhibit hall is now being planned. The work will include cleaning and rehanging the immense whale skeletons in more lifelike poses which will help the visitor to comprehend how these huge mammals move.

Since, unlike most museums, the MCZ is prevented by its charter from charging admission, it must look to other sources to improve the exhibits.

The entire project, including modification of the cases on the floor below, will cost approximately \$150,000. Your (tax deductible) contribution, large or small, to save the whales will ensure their survival for future generations.

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I (We) would like to contribute \$\_\_\_\_\_ for the renovation of the MCZ's whale exhibit.

Name \_\_\_\_\_ Address \_\_\_\_\_

Contribution enclosed ☐ Contribution will be sent by \_\_\_\_\_

\*Museum of Comparative Zoology, Harvard University, Oxford Street, Cambridge, Mass. 02138









## FROM THE FIELD STATION

By William K. Newbury

This past summer one of our undergraduate researchers, Desmond Fitzgerald, compiled a history of man's use of the Estabrook Woods since the arrival of the first settlers in Concord. His report documents the versatility of such a woodland area in satisfying man's needs.

The earliest inhabitants of the town stuck close to the rivers but, as the population expanded, people soon moved into the wooded upland areas. By 1700 much of the Estabrook Woods had been cleared for use as "common" pasture land. This cooperative use, however, soon gave way to the system based on private ownership of small parcels, a system symbolized by the network of stonewalls which still exists today. Though the soil was poor, the farmers who owned these plots worked the land for more than a century turning much of the remaining woodland into gardens and orchards.

The decline of agriculture at the beginning of the nineteenth century led to the rise in importance of wood products and recreational use of the Woods. For example, Henry David Thoreau's family established its pencil factory there to take advantage of the cedars that had colonized the abandoned fields. According to Thoreau's remarks in his journal, by the 1850's the Woods had also become a favorite place for picnickers and hikers.

As the forest matured in the latter half of the century, more and more trees were cut for fuelwood to heat homes in Concord, Boston and surrounding communities. After the development of central heating early in the 1900's, cutting for firewood decreased rapidly. Recreational use of the Woods, however, has continued and is in fact now rapidly growing due to the increasing popularity of cross country skiing.

This interesting reconstruction of the land use history of the Estabrook Woods was possible because of the existence of an extensive (though certainly not complete) set of deeds, reports, maps and diaries dating back to the 1640's. Using the information from these sources, the historian can help us understand both the daily lives of individual citizens and the organization of local communities in those earlier times.

Unfortunately, there is no comparable set of records of the biological conditions in the Woods during those same three hundred years. Such a comprehensive set of data could help biologists understand both the ecology of individual components of the forest ecosystem and the role that these individual organisms play in maintaining the stability of the system.

An insightful understanding of ecological balance

and change requires a continuing and unbroken overview of an area such as the Estabrook Woods. That overview must extend over many seasons and include a variety of information. I believe that the Field Station has an excellent opportunity to establish a program focusing primarily on the continuous collection and integration of such biological information.

At the heart of this program is the commitment to the collection of data by the students and faculty from the university and by the many amateur naturalists residing in the area who have a long-standing interest in the local animals and plants. My role is to coordinate the efforts of these individuals, to insure the consistency of the data gathering, and to help with the integration and publication of this information.

The Field Station has spent the past year testing the interest and commitment of the different participants. We initiated ten research projects to determine the feasibility of this integrated approach. These projects, involving the collaboration of more than a dozen undergraduates, a hundred amateur naturalists and eight faculty members, are listed below:

Project	Faculty	Students	Amateurs
Land Use History	1	2	—
Tree Canopy Survey	1	2	15
Violet Competition	2	6	10
Coleoptera Survey	1	2	3
Hymenoptera Studies	2	3	1
Dragonfly Behavior	1	1	1
Small Mammal Survey	1	1	17
Equine Encephalitis Research	1	1	—
Breeding Bird Census	—	—	6
Recreation Survey	—	—	50

This first year has been an extremely successful one. We have already gathered a great deal of data on the biology of the Woods.

Equally important is the training of many students and amateurs to continue the research in the future. Because of these initial results, three additional faculty members have made plans to start projects this coming summer and the Field Station has applied to the NSF for funds to support a second year of research.

I hope that in some future year the Field Station will be able to prepare a comprehensive report on the ecological development of the Estabrook Woods to match Des Fitzgerald's report on the land use history of the area.

*The MCZ Newsletter is published three times a year by the Museum of Comparative Zoology, Harvard University, Oxford Street, Cambridge, Massachusetts 02138; A. W. Crompton, Director.*

*Editor: Gabrielle Dundon*

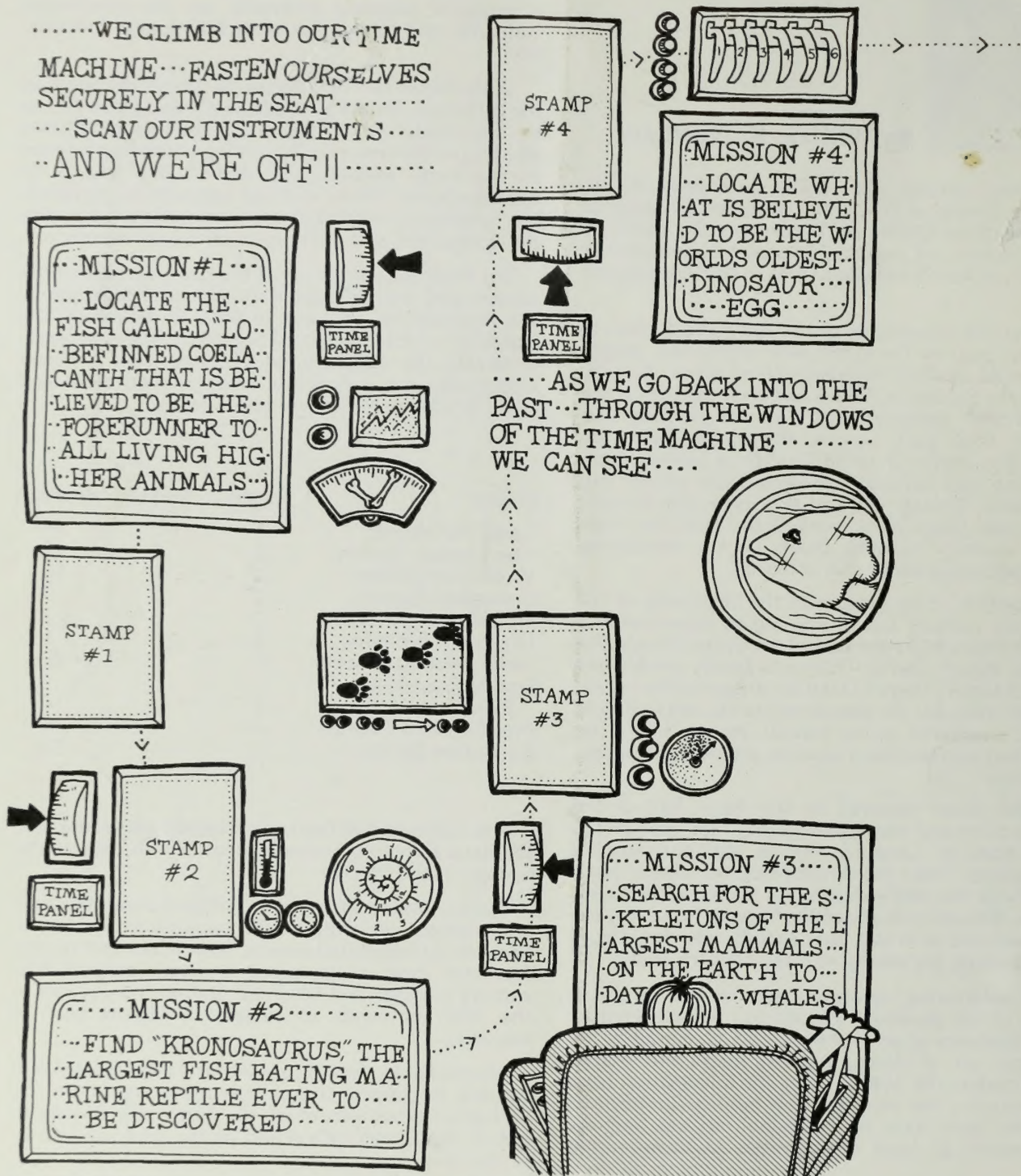
*Photographers: A. H. Coleman*

*Paula Chandoha*



## 4.5 BILLION YEAR EARTH ODYSSEY

.....WE CLIMB INTO OUR TIME  
MACHINE...FASTEN OURSELVES  
SECURELY IN THE SEAT.....  
...SCAN OUR INSTRUMENTS...  
...AND WE'RE OFF!!.....



WHITNEY POWELL

Here is a part of a new game to search for the treasures in the Harvard University Museum (which includes the MCZ, the Peabody Museum, Botanical Museum, and Geology and Mineralogy Museum). This is a new adventure that will greet visitors, both young and not-so-young, during the national Bicentennial celebration. Brightly-colored stamps of some of the more spectacular exhibits will be dispensed by strategically-placed stamp machines and will complete the game which doubles as a souvenir poster. A committee including staff members of the MCZ and the Peabody Museum have been developing this and other educational games to add a new dimension to Museum visits.





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